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PAPER
IN
CHEMISTRY.

SAFE TUBE FOR THE OXY-HYDROGEN
BLOWPIPE.

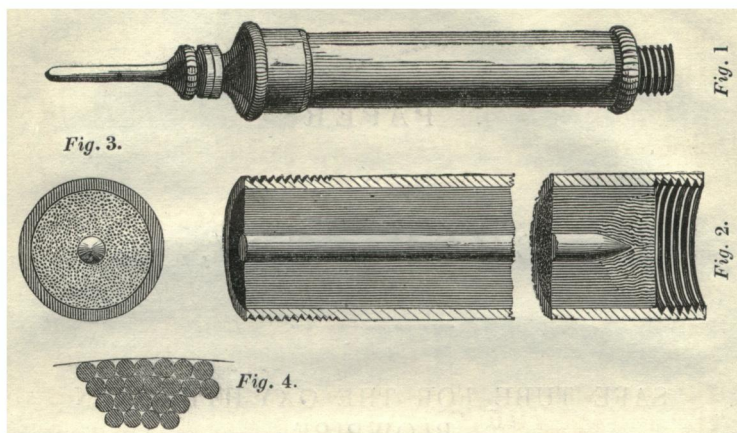
The LARGE SILVER MEDAL was presented to Mr. J. HEMMING, 5, Brecknock Crescent, Camden Town, for his Safe Tube for the Oxy-hydrogen Blowpipe. The following communication has been received from the Inventor, and one of his Tubes has been placed in the Society's Repository.

5, Brecknock Crescent, Camden Town,

SIR,

April 11, 1832.

I SEND for the inspection of the Society of Arts, &c. a safety tube I have invented, for preventing accidents in the combustion of the mixed gases oxygen and hydrogen, when employed for the purposes of the blowpipe. It is a brass cylinder, fig. 1, about $\frac{3}{4}$ inch internal diameter, and four inches long, filled with equal lengths of brass wire $\frac{1}{16}$ inch diameter. The number of wires in the tube is 4200, and they are wedged closely together by a pointed rod $\frac{1}{4}$ inch diameter, forcibly inserted through the centre of them, as shewn in the section, fig. 2, and the end view, fig. 3. One extremity of the tube is provided with a



screw for attachment to a bladder or other reservoir of the gases, and the other with a blowpipe jet of the usual kind. The interstices between the fine wires, which are extremely small, become in effect a congeries of metallic tubes of the smallest possible bore, as shewn fig. 4, the cooling and conducting power of which are far greater than could be effected by filling a tube of equal length with discs of wire gauze, (the contrivance adopted in the usual safety chamber), the apertures being so much smaller than those in the finest wire gauze, and possessing the decided advantage of uninterrupted continuity.

In a great number of experiments with this safety-tube, I have never been able to produce a recession of the flame of the mixed gases oxygen and hydrogen, although I have frequently ignited them at the extremity, after removing the jet piece, which is nearly $\frac{3}{4}$ inch diameter, and have relieved all pressure repeatedly. I am so fully convinced of the perfect safety of this instrument, that I have dispensed altogether with the well, &c. &c. of the usual blowpipes, and operate constantly with the gases contained in a bladder held under my arm, even when

the jet piece is removed. I shall be happy to perform this experiment before the Society.

It may be worthy of remark, that in the course of some experiments with Gurney's blowpipe, provided with Wilkinson's safety chamber, &c., I found that I could produce explosion of the gases in the well many times in succession, if even a very minute portion of water passed with the gases into the safety chamber. By filling the well nearly full of water (without a stratum of oil on the surface), I could always produce an explosion; but when my own safety tube was attached, instead of the usual chamber, I found it impossible in any instance, and under any circumstances, to explode the gases in the well.

It may be necessary to observe, it is indispensable that the wires in the tube be as fine as those I have employed. If thicker wire is used, the interstices are larger, and, consequently, there is a chance of the flame receding through them. The wires should also be as closely wedged together as they are in the accompanying instrument, in order to ensure minuteness of aperture.

I am, Sir, &c. &c.

A. AIKIN, *Esq.*

JNO. HEMMING.

Secretary, &c. &c.

The experiments alluded to in the preceding letter were performed in presence of the Committee, to their entire satisfaction.